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distinguished iron master, John Fritz, the builder and manager of the famous Bethlehem Iron Works.

CURRENT NOTES ON ANTHROPOLOGY (XV.).

THE PITHECANTHROPUS ERECTUS.

IN SCIENCE, January 11, 1895, I published the first notice, in this country, of Dr. Dubois' remarkable find, in Java, of a creature intermediate between man and the apes; adding that his monograph could not fail to excite wide attention. This was so decidedly the case, so many articles appeared for and against the accuracy of his statements and conclusions, that the Dutch government sent for him to come in person and bring all his specimens to the International Zoölogical Congress in Leyden, in October last. He punctually appeared, with a large number of mammalian bones from the formation in which the Pithecanthropus was found, and an additional tooth of the animal itself.

The geological experts present decided that the various bones indicated the oldest pleistocene or else the youngest pliocene. The anatomists expressed themselves about the skull, teeth and femur of the alleged 'missing link.' Professor Virchow, probably the most conservative, maintained that the bones were of an ape; but an ape generically distinct from any known; and if the skull and femur belonged to the same individual then it was an erect ape, walking like a man; but he would not acknowledge that it bridged the gap between the anthropus and the anthropoid.

Practically the same result was reached by the eminent French anatomist, Dr. Manouvrier. He studied the originals in the possession of Dr. Dubois; and he declares there can be no doubt that in them we see the remains of a creature intermediate between man and the ape, walking erect, with a cranium like that of the gibbons, but much larger than any existing gibbon.

The conclusion is indisputable that in the Pithecanthropus we have an animal higher than the highest ape and lower than the lowest man.

AFFINITIES OF THE CHACO LANGUAGES.

DR. S. A. LAFONE QUEVEDO, well known for his studies of the native tongues of the Argentine Republic, has lately published some of his results in a paper entitled 'Las Migraciones de los Indios en la America Meridional.' The theory he advocates briefly is that the Kechua, the Aymara, the Araucan, Cacan, Guaycuru and Guarani are fundamentally much less different than has been supposed; that, allowing for phonetic changes, and adventitious and local forms, they have so much underlying similarity that we should regard them as developments from a common, ancient speech. To support this opinion, he lays much stress on the words for water, river, rain, etc., and on the personal pronouns.

Much more evidence will have to be presented before this opinion will be accepted. It is in conflict with the views of nearly all previous scholars. On the other hand, all will welcome the special studies of the same writer on the Chaco dialects. He has in press an extended grammar of the Abipone, and is engaged on another of the Mbaya and a third of the Payaguá. He has reached the conviction that the Vilela and Lule are the only two non-Guaycuru languages in the Argentine Chaco. If this is so it simplifies amazingly the extremely complicated ethnography of that region.

D. G. BRINTON.

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SCIENTIFIC NOTES AND NEWS.

ASTRONOMICAL.

MEASUREMENT of the photographic plates taken for the purpose of making an accurate catalogue of all the stars in the heavens has decidedly gone beyond the preliminary stage.

From the last number of the *Vierteljahrsschrift der Astronomischen Gesellschaft* we learn that during the year 1894, 46 plates, containing 11,750 stars, have been measured at the Potsdam Observatory. At Paris, where measurements have been going on for two years, the number of star positions obtained is as follows, according to the reports of M. Tisserand, Director of the Paris Observatory:

In 1893, 27,750 stars, from 72 plates.

In 1894, 32,898 stars, from 120 plates.

ONE of the most extensive least square solutions ever made has recently been published by Prof. Schur, of Göttingen. The heliometric triangulation of the stars in the cluster Præsepe gave rise to a series of 74 normal equations, involving 74 unknown quantities. The solution of this set of equations was effected by Prof. Schur in ten weeks, by means of the usual Gaussian method of elimination. Prof. Schur comes to the conclusion that no other method of elimination, such as the method by successive approximation, is to be compared to the Gaussian method, even though it might seem to promise a saving of labor in advance. Prof. Schur mentions as the longest least square solution he has been able to find in astronomical literature a geodetic adjustment made by Bæyer, in which a set of normal equations with 86 unknowns was successfully solved by the famous computer Dase in three months.

H. J.

BIBLIOGRAPHIES OF THE SCIENCES.

RECENT numbers of the *Revue Scientifique* (Nov. 9, 16 and 23) contain important articles in regard to action taken by the scientific congresses on bibliography. A recommendation adopted by the French Association, the Berne Physiological Congress and the Brussels Bibliographical Conference proposes that the most significant word in the title of a scientific paper be indicated by a line printed under it and extending the whole length of the word, and that subdivisions of the subject treated be indicated by words in the title with lines printed underneath one-half the length of the word.

The International Bibliographical Conference, held in Brussels during September, has established an *Office internationale de bibliographie* at

Brussels, and has requested the Belgian government to take the initiative in securing the coöperation of other governments in the support of an international bureau. The conference recommended without hesitation a decimal system of classification, and after some discussion the adoption of the Dewey system in its present form. The Physiological Congress, however, decided that careful consideration would be necessary before a system of classification could be finally adopted, and a committee was appointed, with instructions to report at the next Congress, consisting of Profs. Bowditch, Foster, Kronecker, Mosso and Richet.

It is to be feared that underlining the significant words in a title will cause difficulties to authors, editors and printers. When a title is properly chosen all the leading words should be significant and are likely to be nearly equally so. If a decimal classification of the sciences could be agreed upon, the object desired could be secured by requesting the author to indicate after the title what he regards as the proper classification of his article.

THE ANNIVERSARY MEETING OF THE ROYAL SOCIETY.

AT the Anniversary Meeting on November 30th, at Burlington House, the reports of the officers of the Society were presented and the following officers were elected for the ensuing year:

President, Sir Joseph Lister; Treasurer, Sir John Evans; Secretaries, Prof. Michael Foster, M. D., and Lord Rayleigh; Foreign Secretary, Dr. Edward Frankland; other members of the Council, Mr. William Crookes, Sir Joseph Fayrer, Mr. Lazarus Fletcher, Dr. W. H. Gaskell, Dr. W. Huggins, Lord Kelvin, Prof. Alexander B. W. Kennedy, Prof. Horace Lamb, Prof. E. R. Lankester, Prof. Charles Lapworth, Major P. A. MacMahon, R. A., Prof. J. H. Poynting, Prof. A. W. Rücker, Mr. Osbert Salvin, Prof. H. M. Ward and Admiral W. J. Lloyd Wharton.

The Copley Medal was awarded to Dr. Karl Weierstrass, distinguished for investigations in pure mathematics extending over a period of fifty years. A Royal Medal was awarded to Dr. John Murray for his editorship of the report

of the Challenger Expedition and for his own large contributions to the work of the expedition, and to the scientific papers embodied in the report. A Royal Medal was awarded to Prof. J. A. Ewing for his investigations on magnetic induction. The Davy Medal was conferred on Prof. William Ramsay for his work on argon and helium.

Lord Kelvin, who retires at his own request from the presidency after five years of service, delivered an admirable anniversary address, reviewing the scientific events of the preceding year in so far as they relate to the Royal Society. After paying tributes to the memory of Cayley, Neumann, Huxley and Pasteur, he described the progress that had been made in regard to cataloguing scientific papers, the centenary of the French Academy, and other matters. He concluded by describing in some detail the work of those on whom the medals were conferred.

PROGRAM FOR THE PHILADELPHIA MEETING OF THE AMERICAN SOCIETY OF NATURALISTS.

Thursday, December 26th, 2 P. M.

1. Reports of Committees.
2. Special Reports.
3. Recommendation of new members.
4. President's Address: 'The Formulation of the Natural Sciences.'

8 P. M.

Illustrated lecture at the hall of the Academy of Natural Sciences, corner of 19th and Race Streets, by Prof. W. B. Scott, of Princeton University, on 'The American Tertiary Lakes and their Mammalian Faunas.'

9 P. M.

Reception to all the Societies given by Prof. Horace Jayne, at his home on the southeast corner of 19th and Chestnut Streets.

Friday, December 27th, 9 A. M.

1. Election of new members.
2. Election of new officers for 1896.
3. Other business that may arise.

10 A. M.

Discussion. *Subject:* 'The Origin and Relations of the Floras and Faunas of the Antarctic and Adjacent Regions.'

Geology: PROF. ANGELO HEILPRIN, Philadelphia Academy Natural Sciences.

Paleontology: PROF. W. B. SCOTT, Princeton University.

2 P. M.

Botany: PROF. N. L. BRITTON, Columbia College.

Zoölogy. Invertebrata of the Land: PROF. A. S. PACKARD, Brown University.

Zoölogy, Vertebrata of the Land, Fishes, Batrachia and Reptiles: DR. T. N. GILL, Smithsonian Institution.

Zoölogy. Vetebrata of the Land, Birds and Mammalia: MR. J. A. ALLEN, American Museum Natural History, New York.

Zoölogy. Vertebrata of the Sea: DR. G. BROWN GOODE, U. S. National Museum.

The maximum time permitted to each speaker is 30 minutes. General discussion at the close.

7:30 P. M.

Annual Dinner of the Affiliated Societies at the Lafayette Hotel, northwest corner of Broad and Sansom Streets.

GENERAL.

THE *Journal of Experimental Medicine*, a periodical to appear at least four times a year, will be published at the beginning of the year by D. Appleton & Co. The journal, which is to be devoted to original investigations in physiology, pathology, bacteriology, pharmacology, physiological chemistry, hygiene and medicine, will be edited by Professor William H. Welch, of Johns Hopkins University, with a board of twelve associate editors, as follows: For physiology: H. P. Bowditch, Harvard University; R. H. Chittenden, Yale University; W. H. Howell, Johns Hopkins University. For pathology: J. George Adami, McGill University; W. T. Councilman, Harvard University; T. Mitchell Prudden, Columbia College. For pharmacology: John J. Abel, Johns Hopkins University; Arthur R. Cushny, University of Michigan; H. C. Wood, University of Pennsylvania. For medicine: R. H. Fitz, Harvard University; William Osler, Johns Hopkins University; William Pepper, University of Pennsylvania.

THE Third Annual Congress of Teachers of Chemistry will be held in the Kent Chemical Laboratory of the University of Chicago, on Monday, December 30, at 2:00 P. M., and on Tuesday, December 31, at 9:00 A. M. The following subjects will come up for discussion in the order named: (1) Report of committee (Messrs. Freer, Noyes and A. Smith) on reasons why the study of physics should precede that of chemistry in the high schools. (2) Report of committee (Messrs. Freer, Swan and Linebarger) on a detailed outline of study of chemistry for the secondary and high schools. (3) Which method—the lecture, or the text-book system—is, on the whole, the most advantageous to use in teaching chemistry in the colleges? (4) Mendelejeff's periodic law; its place and its function in an elementary (say one year's course) in chemistry? (5) To what extent should physical chemistry be introduced into a course in college general chemistry? There will be no set papers read and the discussion will be entirely informal. Every teacher of chemistry in a high school or a college will be welcome and is invited to be present, no special invitation being necessary.

THE *Astronomischen Gesellschaft* has decided, because of the expense connected therewith, no longer to maintain a library. The announcement is made that the Society does not desire to receive any publications in the future and that, with the completion of the 30th year of the *Vierteljahresschrift*, no exchanges with other scientific bodies will be continued.

DURING the winter of 1876-77, the cormorants of the Commander Islands, *Phalacrocorax pelagicus*, were almost exterminated by an epidemic, dying in such numbers that the beach was strewn with thousands of dead birds. They recovered from this and by 1882 were again abundant, although by no means as plentiful as before. Dr. Stejneger reports that the species has again suffered from the ravages of disease and the cormorants are now exceedingly rare where they formerly abounded.

THE U. S. Geological Survey, and its officers, were awarded several gold medals and as many diplomas at the Atlanta Exposition, for the instructive, interesting and admirably installed

exhibits that it placed there. There is a grand prize and a gold medal for the exhibit of relief maps, etc., a medal and diploma for the Chief Chemist of the Survey, Prof. F. W. Clarke, in 'grateful recognition' of his services in the installation of various exhibits, and a grand prize and gold medal to Dr. D. T. Day, of the Survey staff, for a study and exhibit, made with the coöperation of the Exposition Company, of the mineral resources of the South.

A MARK of the high esteem in which the work of the Geological Survey is held abroad has just been received by the Director. The recent Exposition of Mining and Metallurgy, held at Santiago, Chili, awarded the Survey the first premium for the Geologic Atlas of the United States and a collection of its publications. The maps and reports referred to constituted virtually the whole exhibit of the Survey at Santiago.

A NEW Russian medical journal, *Rusches Archiv für Pathologie, Clinische Medezin und Bacteriologie*, will be published monthly after January next. It will be edited by Prof. W. W. Podyvssotzky, of Kieff.

THE Secretary of the Royal Malacological Society of Belgium, Prof. Hugo de Cort, 47 Rue Veydt, writes us that he wishes to arrange exchanges of Belgian for foreign shells.

THE eleventh annual meeting of the Indiana Academy of Sciences will be held in Indianapolis on Friday and Saturday, December 27th and 28th. The State has undertaken the publication of the proceedings of the Academy.

It is expected that the Astronomical Observatory of the University of Berlin will be removed to Dahlem, to which suburb, as recently stated in this journal, it is proposed to remove the Botanical Garden.

SURGEON-MAJOR DOBSON, F. R. S., died on November 26th, at West Malling. He was the author of numerous original researches in Zoölogy and comparative Anatomy.

THE Argentine Medical Club of Buenos Ayres offers three prizes, the first of \$300 for researches in bacteriology, to be presented before May 31, 1897. The prizes are offered to honor the memory of Pasteur.

IN spite of the anti-toxin treatment, the epidemic of diphtheria in London continues; the number of deaths during the week ending November 30th was 63, which is 24 more than the average for the previous ten years.

DR. DONALDSON SMITH, who left England in the Summer of 1893, with the object of exploring Lakes Budolph and Stephanie, has just reached Plymouth, England. Since February nothing had been heard of him, until a telegram from Aden, at the beginning of November, announced the success of the expedition, and the arrival of Dr. Smith at that place. Dr. Smith will read a paper before the Royal Geographical Society next month, and in January will return to America, where an account of his travels will be published.

THE late Professor Verneuil is succeeded in the Paris Academy of Sciences by M. Lannelongue (who received 36 votes, while M. Ollier received 22), and in the Paris Academy of Medicine by M. C. H. Monod.

THE new anatomical and physiological laboratories of the University of Glasgow were opened on November 18th.

The Lancet states that the Royal College of Physicians of Edinburgh has purchased, at a cost exceeding \$35,000, property on which a laboratory will be erected.

SIR HENRY ACLAND was presented, on December 4th, with a testimonial to commemorate his services during the forty years for which he has held the office of Regius professorship of medicine in the University of Oxford. A bust will be placed in the University Museum and over \$15,000 will be given to the Sarah Acland home for nurses.

WE announced last week the death of Henry Seebohm, one of the most eminent and best known of British ornithologists. Mr. Seebohm was an explorer as well as an ornithologist, and his delightful volumes '*Siberia in Asia*' and '*Siberia in Europe*' brought him a wide circle of readers. Among the best known of his bird books are '*A History of British Birds*' (3 vols.), '*Monograph of the Plovers, Snipes and Sandpipers*' and '*Birds of the Japanese Empire*.' Several of his works are richly illustrated by colored

plates. Seebohm followed no leader, and his numerous writings are always vigorous, interesting and original. Personally he was genial and generous, and his death will be sadly felt on both sides of the Atlantic.

WE regret to record the death of the Rev. Timothy O. Paine, a well known Egyptian scholar, on December 6th; of Professor W. N. Popoff, lecturer on physiology in the University of Dorpat, and of Dr. G. Krabbe, of the University of Berlin, on November 3rd, at the age of 80 years.

LORD KELVIN in his anniversary address before the Royal Society described the steps that have been taken towards the publication of an index of scientific literature. Through a gift from Mr. Ludwig Mond, F. R. S., \$10,000 is available for the expenses of cataloguing, and there are now twelve copyists engaged in the work. About 140,000 slips have been mounted and classified. Lord Kelvin referred to the International Institute of Bibliography established in Brussels, but says that this will not interfere with the International Conference to which invitations have been issued for July of next year.

IN view of the approaching quinquennial census to be taken in 1896 in both France and England, it is interesting to compare the population of the two countries. In 1801 France possessed a population more than eleven millions greater than Great Britain and Ireland, whereas in 1891 the excess of population in France was less than one-half million. It is probable that the population of the United Kingdom is now the greater. In the two years 1892 and 1893 the deaths outnumbered the births in France, whereas in the United Kingdom there were nearly a million more births than deaths.

EDUCATIONAL NOTES AND NEWS.

MISS HELEN CULVER signed papers on December 14th giving \$1,000,000 to the University of Chicago to be used for the biological departments. This gift carries with it \$1,000,000 conditionally pledged by Mr. John D. Rockefeller on November 2d. It is probable that a school of medicine will be established.